Application Research of Positive Coaching Case-Driven Teaching Method in the Course of Information System Analysis and Design

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Abstract: *This study combines positive education, case-based teaching, and coaching techniques to implement a teaching reform in the course of Information System Analysis and Design. By creating a positive teaching atmosphere, employing real-world information system cases, and facilitating coaching-style group exploratory learning, the aim is to establish a new classroom environment that is self-motivated, proactive, and enjoyable.*

Keywords: *Positive Education, Coaching Techniques, Case-Based Teaching*

1. Introduction

With the advancement of artificial intelligence, societal demands for talent have transitioned from mere knowledge retention to more comprehensive and innovative practical abilities. The Ministry of Education's "Opinions on Deepening Undergraduate Teaching and Educational Reform to Comprehensively Improve the Quality of Talent Cultivation" (Document No. 6 of 2019) emphasizes the need to "promote teaching revolution in classrooms, eliminate 'water courses' and create 'golden courses,' and appropriately increase the academic challenge level" [1][2]. In this context, exploring teaching methods centered on learning and guided by teaching, which emphasize practice and innovation, has become an urgent need for educational reform. According to the "China Education Modernization 2035" plan, education should place greater emphasis on the cultivation of students' core competencies, emphasizing "self-directed, collaborative, and exploratory" learning methods [1][2]. Therefore, this study attempts to introduce positive coaching case-based teaching methods in the course of Information System Analysis and Design by leveraging positive education, coaching techniques, and case-based teaching. By fostering a positive teaching interaction atmosphere, selecting real-life information system cases, and conducting coaching-style group exploratory learning, it aims to stimulate students' proactivity and critical thinking, enabling them to engage in self-motivated and happy learning.

1.1 Positive Education

In 1988, Professor Martin Seligman first proposed promoting positive psychology, and positive education is the practical application in education of positive psychology's efforts to guide students in developing character strengths and enriching positive psychological experiences. On March 21, 2014, Professor Martin Seligman, the founder of positive psychology, and six leading figures in the international positive psychology movement decided to establish the "International Positive Education Alliance Committee," and proposed that the fundamental purpose of education is to enhance human happiness. In July 2016, the International Positive Education Alliance was officially established in the United States, marking the launch of the international strategic plan for the education of positive psychology and the science of happiness [3].

Since the 21st century, countries have actively explored and implemented positive education models in practical base schools. Currently, although positive education is practiced in dozens of schools in China, it has not yet achieved widespread adoption. Based on local positive education practice research in China and the Seligman model, the Psychology Department of Tsinghua University has designed a positive education model comprising six modules and two systems to guide research on positive education courses. The core mission of positive education is to create a positive educational environment, cultivate students' positive emotions, shape their positive qualities, and empower them to

achieve self-education, thereby realizing meaningful and joyful psychological experiences in education [4].

1.2 Coach-Education Techniques

Coaching technology originated in the 1970s American tennis community, proposed by Tim Gallwey, the Harvard University tennis team captain. Through his "non-traditional teaching method," he demonstrated the possibility of mastering tennis skills within 20 minutes, emphasizing the stimulation of inner potential rather than direct instruction. This concept was later extended to the field of enterprise management and became an important tool in modern human resource management[5].

Through directional and strategic questioning and interaction, coaching technology helps coachees break through mental model limitations, stimulate inner potential, and achieve goals in an optimal state. Its core principle is "coachee-centered," rather than directly providing solutions, by guiding self-reflection and action adjustment to achieve goals.

Coaching technology involves many models and tools, among which the GROW model emphasizes helping coachees achieve goals through four steps: goal setting, current situation analysis, option selection, and action commitment. This model can be applied in the teaching process to better support student autonomous development[6]. Specific applications include:

(1) Goal-oriented dialogue: Help students set specific and measurable learning goals through the "SMART principle", such as "Propose at least three innovative solutions in the next case study".

(2) Effective questioning: Utilizing the "Socratic questioning method," teachers guide students to think deeply through questions like "Why do you think this solution is feasible?"

(3) Feedback and motivation: Using the "hamburger feedback method" (positive feedback, constructive suggestions, and positive feedback), teachers protect students' motivation, for example, "Your analysis is clear, but if you could support it with more data, it would be even more persuasive."

1.3 Case-Based Teaching Methods

These methods enhance students' learning and application of knowledge by introducing specific real-world problems or scenarios, allowing students to learn and apply knowledge while solving these problems. This method not only improves students' practical skills and problem-solving abilities but also enhances their teamwork and communication skills. Through case-based teaching, students can apply their knowledge in real-world scenarios, thereby deepening their understanding and mastery of the knowledge [7]. Additionally, case-based teaching methods can also stimulate students' interest in learning, allowing them to experience the joy and sense of achievement in solving real-world problems.

In the practical implementation process, the case-driven teaching method typically follows a closed-loop process of "context introduction - problem analysis - knowledge connection - collaborative inquiry - solution output - reflection and summary". First, teachers discuss real-world cases that cover multidisciplinary knowledge with students, then divide students into groups and require them to approach from different angles, identify the essence of problems, and sort out key elements. This stage not only requires students to apply existing theoretical knowledge but also needs them to use tools like AI to search for information, conduct field research, and other ways to supplement information, thereby cultivating students' independent learning and information processing abilities. Subsequently, group members develop solutions together through discussions, debates, role-playing, and other forms, exercising logical reasoning, critical thinking, and teamwork skills in the process. Finally, each group needs to present their solutions and make reports, while teachers and other groups provide multi-dimensional evaluations and feedback, prompting students to reflect and optimize, forming a continuous improvement learning cycle.

This teaching model has multidimensional effects on students' ability development. At the practical ability level, students gradually learn to transform abstract theories into operational strategies through repeated exposure to real-world problems. In terms of problem-solving skills, they learn to break down complex problems, identify potential variables, weigh pros and cons, and develop systematic thinking. At the level of teamwork and communication, practical experiences such as role division, viewpoint integration, and conflict coordination significantly enhance students' social skills and leadership abilities. More importantly, the case-driven teaching method allows students to personally experience the application value of knowledge through a "learning by doing" approach. When their solutions

effectively address or partially solve simulated or real-world problems, the sense of achievement transforms into intrinsic learning motivation, thereby stimulating more lasting learning interest.

2. Application Strategies

This application research aims to integrate positive education, coach-education techniques, and case-based teaching into classroom instruction. By creating a positive and interactive teaching environment, it aims to attract students to actively participate in the classroom, engage in case-based challenges, and thereby cultivate excellent character traits, enhance practical skills, and foster proactive problem-solving abilities. This ultimately achieves the research and teaching goal of promoting proactive and happy learning. The application strategy of positive coaching-based case-based teaching is shown in Figure 1:
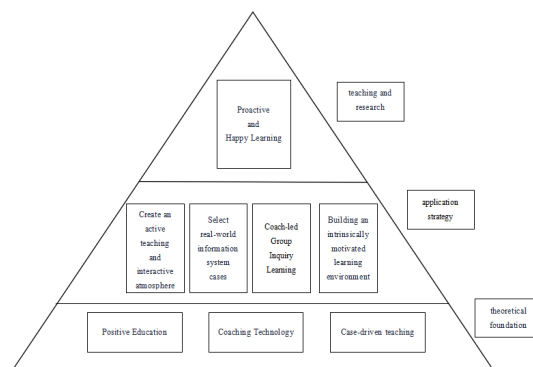
Figure 1 Application Strategy Diagram

"Information System Analysis and Design" is a comprehensive and practically oriented required course for the major of Information Management and Information Systems. The teaching objective of this course is to familiarize and enable students to master the lifecycle of information systems, development processes, and commonly used methods and tools. It aims to establish an overall mindset for developing information systems, cultivate the preliminary ability to develop information systems, and lay a solid foundation for future careers in information management and the development and technical services of information systems. To achieve better teaching outcomes, this study employs positive education and coaching techniques, integrating goal-oriented problem-based and case-driven group teaching methods. This approach facilitates guided exploratory learning, and the following application strategies are adopted to reform the course, aiming to improve the stagnant and passive learning environment in the classroom and ultimately achieve the goal of active and happy learning.

2.1 Creating a Positive Interactive Learning Environment

To attract students to actively and proactively participate in class learning, this course first selects a classroom setting that is vibrant and comfortable, conducive to collaborative learning. Before each class, positive incentives are announced for students who arrive 10 minutes early, fostering a butterfly effect that encourages the entire class to arrive earlier. During the course, the last five minutes before class are used to share positive, meaningful stories, setting a positive tone for the day's lesson. Throughout the content, activities like quick response, selecting participants, and group interactions are incorporated to create an engaging learning atmosphere.

2.2 Select Real-World Information System Cases

To connect the case studies with students' real lives, the course begins by having students identify and redefine problems they encounter in their daily lives. This ensures the problems are genuine. Then, using information system analysis and design theories, these problems are refined and summarized into a feasible information system to address the students' issues. This process is both challenging and exciting. As the information system becomes clearer and eventually takes the form of a prototype interface or a real system, students experience a sense of accomplishment.

2.3 Conduct Coach-Led Group Inquiry Learning

To help students gradually realize their problems using course knowledge, the course employs group inquiry-based teaching methods. Groups are formed based on class size, with each group consisting of 3-5 students. Throughout the course content, the teacher uses coaching techniques to actively listen, ask powerful questions, and provide timely feedback and guidance. This helps students clearly define tasks at each stage and develop a plan for the information system's development, thereby truly assisting them in transforming an abstract system into a tangible one through teamwork and the application of information system structuring or object-oriented methodologies.

2.4 Create an Intrinsically Motivated Learning Environment

By fostering a positive teaching and learning atmosphere, selecting real-world information system cases, and conducting coach-led group inquiry learning, this course is filled with an active, self-motivated, and engaging learning environment. Students are no longer passive listeners but actively use course knowledge, collaborate in groups, and seek guidance from teachers to solve real-life problems. Only in this way can we create a new learning environment that is self-motivated, active, and happy.

3. Conclusions

This study is supported by Positive Education, Coaching Techniques, and Case-based Teaching theories. Through creating a positive teaching interaction atmosphere, selecting real-world information system cases, conducting coaching-style group inquiry learning, and building an intrinsically motivated learning environment, four application strategies were implemented to attempt Positive Coaching Case-based Teaching in the "Information System Analysis and Design" course. After one semester of teaching practice, students actively participated in class interactions, with happy smiles during discussions, and gained significantly from case-based teaching. Coaching techniques effectively motivated students during Q&A sessions. Overall, students provided positive feedback, and the research goal of achieving proactive and joyful learning was basically realized."The essence of education is a tree shaking another tree, a cloud chasing another cloud, and a soul awakening another soul," as German philosopher Karl Jaspers pointed out in 'What Is Education'. With the guidance of active coaching-based case-driven teaching methods, teachers can achieve awakening education through real cases, making classrooms a place of laughter, reflection, and practice, transforming them into an energetic field of happiness for students.

Acknowledgments

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